

AEROSPACE ENGINEERING (MAJOR)

The aerospace program is designed to prepare those students interested in the design and operation of aircraft and space vehicles for entrance into a professional career. The curriculum, based on a sound foundation in mathematics, physics, chemistry and the engineering sciences, places emphasis on such basic aerospace disciplines as aerodynamics and fluid mechanics, orbital mechanics, and solid and structural mechanics, as well as such integrating disciplines as design, experimental methods and systems analysis. By choosing suitable elective courses students may earn a concentration in the following areas:

- Bioengineering
- Computational Engineering
- Control and Mechanical Systems
- Design and Manufacturing
- Energy
- Materials
- Thermal and Fluid Sciences

The aerospace engineering program uses laboratories in Fitzpatrick Hall of Engineering and in the Hessert Laboratory for Aerospace Research. The Hessert laboratories contain superior facilities for instruction and research.

Students are encouraged to participate in the activities of the student chapter of the American Institute of Aeronautics and Astronautics and to enter the national student paper competition conducted by the parent institute and other aerospace extracurriculars such as ND Rocketry; Design, Build, Fly; and IrishSAT. Outstanding achievement in the aerospace program is recognized by membership in Sigma Gamma Tau, the national aerospace honor society.

Further details about the standard aerospace program, the Rome Program and electives can be found on the department website at ame.nd.edu.

To earn a Bachelor of Science degree in Aerospace Engineering, students entering the university in the Fall of 2025 must complete the following courses. The most current information for the degree program course requirements is available in the AME Undergraduate Handbook on the department website.

Code	Title	Hours
University Core Curriculum Requirements ¹		26
College of Engineering Requirements		33
Aerospace Engineering Core Requirements		
<i>Design and Experimental</i>		<i>20</i>
AME 20210	Introduction to Design Thinking in Engineering	
AME 20216 & AME 21216	AME Laboratory I and AME Laboratory 1L	
AME 20217 & AME 21217	AME Laboratory II and AME Laboratory 2L	
AME 21267	Design Tools 1	
AME 21268	Design Tools 2	
AME 30251	Computing, Numerical Methods and Data Science in Engineering	
AME 40461	Aerospace Design I	
AME 40462	Aerospace Design II	
<i>AE Foundational</i>		<i>15</i>
AME 20221	Mechanics I	
AME 20222	Mechanics II	
AME 20241	Solid Mechanics	
AME 30341	Aerospace Structures	
AME 30342	Design and Analysis of Space Structures	
<i>Aerodynamics and Fluid/Thermal Sciences</i>		<i>18</i>
AME 20231	Thermodynamics	
AME 30331	Fluid Mechanics	

AME 30332	Compressible Aerodynamics	
AME 30333	Theoretical and Experimental Aerodynamics	
AME 30334	Heat Transfer	
AME 40431	Gas Turbines and Propulsion	
<i>Dynamics and Control</i>		<i>12</i>
AME 30314	Differential Equations, Vibrations, and Control I	
AME 30315	Differential Equations, Vibrations, and Control II	
AME 30381	Orbital and Space Dynamics	
AME 40451	Aerospace Dynamics	
<i>Electives</i>		<i>3</i>
One Professional Development Elective ²		
Total Hours		127

¹ Note the Liberal Arts 1, 2 and 3 requirements will be covered by the College of Engineering Requirements and the Aerospace Engineering Requirements.

² A list of approved professional development courses is available in the AME Undergraduate Handbook on the department website.